Nephrology Dialysis Transplantation 30 (Supplement 3): iii36–iii37, 2015
doi:10.1093/ndt/gfv151.3

CLINICAL TRANSPLANTATION

SaO031 SERUM CALCIFICATION PROPENSITY PREDICTS MORTALITY IN KIDNEY TRANSPLANT RECIPIENTS

Dag Olav Dahle[1,2], Anders Åsberg[1,3], Anders Hartmann[1], Hallvard Holdaas[1], Trond Geir Jenssen[1,4], Mauro Dionisi[5] and Andreas Pasch[6]

[1]Oslo University Hospital, Department of Transplant Medicine, Oslo, Norway, [2]University of Oslo, Medical Faculty, Oslo, Norway, [3]University of Oslo, School of Pharmacy, Oslo, Norway, [4]UiT The Arctic University of Norway, Metabolic and Renal Research Group, Tromsø, Norway, [5]Calcisco SA, Bern, Bern, Switzerland, [6]University Hospital Bern, Department of Clinical Chemistry, Bern, Switzerland

Introduction and Aims: Kidney transplant recipients are at increased risk of cardiovascular disease compared with the general population. In CKD, accelerated calcification contributes to arterial stiffness and mortality. A blood test for calcification propensity was recently developed by measuring the maturation time (T50) of calciprotein particles in serum, with a lower T50 corresponding to a higher calcification propensity. The prognostic implication of T50 in kidney transplant recipients is not known.
Methods: We measured T50 in biobanked blood obtained 10 weeks after transplantation during two eras, 2000-2003 and 2009-2012. Survival was assessed in Cox regression models, adjusting for age, gender and clinical correlates of T50 including era, diabetes including post-transplant diabetes, first kidney recipient, deceased donor kidney, rejection, cytomegalovirus infection, eGFR, phosphate, prednisolone dose ≥12.5 mg and highest quartile of calcineurin inhibitor trough levels (TAC >8.5 or CsA >220 ng/mL). Although T50 was lower during the first era, there was no interaction between era and T50 regarding survival and the cohorts were combined in the survival analyses. Patients with missing values (1%) were excluded from the multivariable model. Due to non-linearity, T50 was modeled as quartiles with median levels at 111, 165, 216 and 287 minutes, respectively.

Results: Of 1886 eligible adult kidney or kidney-pancreas recipients during the two eras, 1435 (76%) had T50 measured. Hospital staff shortage excluded 161 patients and 290 were transferred to other hospitals before the investigation in week 10.
The cohort was primarily Caucasian with mean age 52 ± 14 years, eGFR 57 ± 19 ml/min/1.73m2, male 66%, diabetes 29.1% including 9.3% post-transplant diabetes, simultaneous pancreas transplant 6% and T50 196 ± 72 minutes.
Median (25th, 75th percentile) follow-up was 5.1 (3.5, 11.6) years. All-cause and cardiovascular mortality occurred in 283 and 104 patients, respectively. As shown in the table, lower quartiles of T50 were strongly associated with both endpoints.

SaO031 Table 1: Survival models

	Age- and gender adjusted HR (95% CI), p-value	Multivariable HR (95% CI), p-value
All-cause mortality		
Q1	2.12 (1.43-3.14), <0.001	1.80 (1.13-2.87), 0.01
Q2	2.07 (1.39-3.06), <0.001	1.93 (1.28-2.92), 0.002
Q3	1.51 (0.99-2.30), 0.06	1.38 (0.90-2.12), 0.14
Q4	Reference	Reference
Cardiovascular mortality		
Q1	5.02 (1.96-12.87), 0.001	4.18 (1.49-11.76), 0.01
Q2	6.31 (2.49-15.98), <0.001	5.66 (2.18-14.73), <0.001
Q3	4.24 (1.62-11.08), 0.003	3.73 (1.41-9.86), 0.01
Q4	Reference	Reference

Q, quartile of T50.

Conclusions: Serum calcification propensity T50 is strongly associated with all-cause and cardiovascular mortality in kidney transplant recipients.